

November 5, 2015

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Richland

2800 George Washington Way

Richland, WA 99352

Tel: (509)375-3131

TestAmerica Job ID: 300-1102-1

TestAmerica Sample Delivery Group: WC0448

Client Project/Site: CH2M Hill Chemical

For:

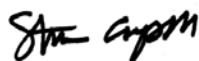
CH2M Hill Plateau Remediation Company

PO BOX 1600

Mail Stop R3-50

Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:

11/5/2015 2:36:41 PM

Steven Campbell, Quality Assurance Assistant

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Designee for

Whitney Ritari, Project Manager I

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LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this package. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the attached signature.

The laboratory is accredited to EPA 7196A in Solid and Chemical Materials, per Washington State Department of Ecology this is approved for non-discharge water samples. The sample/ sample duplicate RPD agreement is not applicable if one or both results are less than five times the MDL.

November 5, 2015

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Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-1102-1
SDG: WC0448

Qualifiers

General Chemistry

Qualifier	Qualifier Description
U	Analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: CH2M Hill Plateau Remediation Company
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TestAmerica Job ID: 300-1102-1
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Job ID: 300-1102-1

Laboratory: TestAmerica Richland

Narrative

Job Narrative 300-1102-1

Comments

No additional comments.

Receipt

The samples were received on 10/15/2015 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.0° C.

General Chemistry

Method(s) 7196A: The following samples were received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: B32V98 (300-1102-1), B32VB2 (300-1102-2), (300-1102-A-1 DU) and (300-1102-A-1 MS). For more information refer to the SIR that is attached to this report.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

X16-001-172

Page 1 of 1

Collector	S.W. Kang/CHRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X16-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303269
Project Title	100-BC-5 RI, OCTOBER 2015	Logbook No.	HNF-N-506 <u>78/55</u>	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	15 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 435.1

SPECIAL INSTRUCTIONS

Submit deliverables & invoices to ^CP Sample Management.

Hold Time

Total Activity Exemption: Yes ☒ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B32V98	N		WCT 14 2015	1200	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C
B32VB2	Y		W	1200	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

November 5, 2015

300-1102 COC



JF 10/15/15

JF 10/15/15

WCT 14 2015

WCT 14 2015

1102

1102

JF 10/15/15

JF 10/15/15

WCT 14 2015

Relinquished By	S.W. Kang/CHRC	Print	Sign	Date/Time	OCT 14 2015 1300	Received By	SSU-1	Print	Sign	Date/Time	OCT 14 2015 1300
Relinquished By	SSU-1	Date/Time	OCT 15 2015 0730	Received By	F.M. Hanch/CHRC	Date/Time	OCT 15 2015 0730				
Relinquished By	F.M. Hanch/CHRC	Date/Time	OCT 15 2015 1000	Received By	J. Fiesz. TARI	Date/Time	OCT 15 2015 1000				

Matrix *

S = Soil DS = Drum Solids
 SE = Sediment DL = Drum Liquids
 SO = Solid T = Tissue
 SL = Sludge WT = Wipe
 W = Water L = Liquid
 O = Oil V = Vegetation
 A = Air X = Other

SAMPLE ISSUE RESOLUTION

SIR NUM SIR16-061
REV NUM 0
DATE INITIATED 10/29/2015

SAMPLE EVENT INFORMATION

SAF NUM(S) X16-001
OPERABLE UNIT(S) 100-BC-5
PROJECT(S) CERC16
SAMPLE EVENT TITLE(S) CERC16
LABORATORY TestAmerica Incorporated, Richland

SAMPLING INFORMATION

NUMBER OF SAMPLES 2
SAMPLE NUMBERS B32V98, B32VB2
SAMPLE MATRIX WATER
COLLECTION DATE 10/14/2015 - 10/14/2015
SDG NUM WC0448

ISSUE BACKGROUND

CLASS Laboratory Issue
TYPE Analysis Holding Time Exceeded
DESCRIPTION Samples were received with less than half of the hold time remaining. As such the lab had insufficient time to analyze the sample within hold time.

DISPOSITION

DESCRIPTION PROPOSED DISPOSITION: Initiate SIR, report results and include comments in the case narrative.

JUSTIFICATION FINAL DISPOSITION: Accept the proposed resolution.

SUBMITTED BY: Whitney Ritari/TARL DATE: 10/29/15
 ACCEPTED BY: Karen Waters-Husted/CHPRC DATE: 11/2/15

November 5, 2015 Detection Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-1102-1
SDG: WC0448

Client Sample ID: B32V98

Lab Sample ID: 300-1102-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.027		0.0040	0.0015	mg/L	1		7196A	Total/NA

Client Sample ID: B32VB2

Lab Sample ID: 300-1102-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.026		0.0040	0.0015	mg/L	1		7196A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

November 5, 2015 Client Sample Results

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-1102-1
SDG: WC0448

Client Sample ID: B32V98

Date Collected: 10/14/15 12:00

Date Received: 10/15/15 10:00

Lab Sample ID: 300-1102-1

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.027		0.0040	0.0015	mg/L	-		10/15/15 15:17	1

Client Sample ID: B32VB2

Date Collected: 10/14/15 12:00

Date Received: 10/15/15 10:00

Lab Sample ID: 300-1102-2

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.026		0.0040	0.0015	mg/L	-		10/15/15 15:18	1

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-1102-1
SDG: WC0448

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-1504/3
Matrix: Water
Analysis Batch: 1504

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L	-		10/15/15 15:09	1

Lab Sample ID: LCS 300-1504/4
Matrix: Water
Analysis Batch: 1504

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.250	0.261		mg/L	-	105	80 - 120

Lab Sample ID: 300-1102-1 MS
Matrix: Water
Analysis Batch: 1504

Client Sample ID: B32V98
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.027		0.0500	0.0788		mg/L	-	103	85 - 115

Lab Sample ID: 300-1102-1 DU
Matrix: Water
Analysis Batch: 1504

Client Sample ID: B32V98
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.027		0.0269		mg/L	-	0.7	20

November 5, 2015
QC Association Summary

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-1102-1
SDG: WC0448

General Chemistry

Analysis Batch: 1504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-1102-1	B32V98	Total/NA	Water	7196A	
300-1102-1 DU	B32V98	Total/NA	Water	7196A	
300-1102-1 MS	B32V98	Total/NA	Water	7196A	
300-1102-2	B32VB2	Total/NA	Water	7196A	
LCS 300-1504/4	Lab Control Sample	Total/NA	Water	7196A	
MB 300-1504/3	Method Blank	Total/NA	Water	7196A	

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill ChemicalTestAmerica Job ID: 300-1102-1
SDG: WC0448

Client Sample ID: B32V98

Date Collected: 10/14/15 12:00

Date Received: 10/15/15 10:00

Lab Sample ID: 300-1102-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			1504	10/15/15 15:17	AMC	TAL RCH

Client Sample ID: B32VB2

Date Collected: 10/14/15 12:00

Date Received: 10/15/15 10:00

Lab Sample ID: 300-1102-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			1504	10/15/15 15:18	AMC	TAL RCH

Client Sample ID: B32V98

Date Collected: 10/14/15 12:00

Date Received: 10/15/15 10:00

Lab Sample ID: 300-1102-1 DU

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			1504	10/15/15 15:17	AMC	TAL RCH

Client Sample ID: Lab Control Sample

Date Collected: N/A

Date Received: N/A

Lab Sample ID: LCS 300-1504/4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			1504	10/15/15 15:09	AMC	TAL RCH

Client Sample ID: Method Blank

Date Collected: N/A

Date Received: N/A

Lab Sample ID: MB 300-1504/3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			1504	10/15/15 15:09	AMC	TAL RCH

Client Sample ID: B32V98

Date Collected: 10/14/15 12:00

Date Received: 10/15/15 10:00

Lab Sample ID: 300-1102-1 MS

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1		3.0 mL	1504	10/15/15 15:14	AMC	TAL RCH

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-1102-1
SDG: WC0448

Method	Method Description	Protocol	Laboratory
7196A	Chromium, Hexavalent	SW846	TAL RCH

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

Client: CH2M Hill Plateau Remediation Company
Project/Site: CH2M Hill Chemical

TestAmerica Job ID: 300-1102-1
SDG: WC0448

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-1102-1	B32V98	Water	10/14/15 12:00	10/15/15 10:00
300-1102-2	B32VB2	Water	10/14/15 12:00	10/15/15 10:00

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Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-1102-1

SDG Number: WC0448

Login Number: 1102

List Number: 1

Creator: Friesz, Jordan D

List Source: TestAmerica Richland

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	